

The importance of local foods to users of food pantries in accessible rural Alaska

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Abstract

Discussions of food security in Alaska normally focus on locally grown foods, Alaska Native subsistence, or poverty, but the intersection between these aspects of food security within Alaskan society have only been examined in the context of urban communities or remote, rural communities. In this paper, we draw attention to a neglected group of communities, rural, mostly non-Native communities accessible by ground

transportation. We weave the three discourses of food security together by examining how low-income people within a specific context incorporate home-grown produce and wild proteins into their diets, thereby expanding the meaning of “local” food. We conducted interviews with users of food pantries and find that some are able to garden and/or hunt and fish—and that this ability may enhance their food security. We discuss ways

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in which their pantry peers who are less engaged with local foods may be supported to increase their involvement.

Keywords

Food Security; Local Foods; Rural; Food Pantries; Alaska

Introduction

The Food and Agriculture Organization (FAO) of the United Nations defines food security as occurring when “all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life” (FAO, 2017). In Alaska, food security discussions manifest along three discourse axes: access to local foods, an Alaska Native focus, and economic factors. These discourses operate largely independently of one another, obscuring the ways in which threats to food security overlap in people’s lives.

Discourses Prominent in Alaska

In keeping with national trends, Alaskans employ the phrase “local foods” primarily to refer to cultivated foods. There is ongoing national debate regarding whether *local* refers only to distance or state of origin, or whether other issues are at play as well, such as the quality of food and/or interpersonal relationships (Colloredo-Mansfeld, Tewari, Williams, Holland, Steen, & Wilson, 2014). In Alaska, the emphasis for local foods is on foods grown within the state. Alaska imports some 95% of its market foods (Meter & Goldenberg, 2014); a primary threat to food security in the local foods discourse is Alaska’s distance from most sources of commercial food. Often the issue is framed as one of disaster preparedness; per the Alaska Department of Homeland Security, Alaskan store shelves hold an estimated three to five days of supplies (Andrews, 2016). Even when distribution systems work well, perishable foods are expensive and of mixed quality. Food prices in Alaska have also proven especially vulnerable to fluctuations in fuel costs, which impacts food security (Fazzino & Loring, 2009). Rather than relying on perishable or imported food, increasing the availability of Alaskan-grown foods would shorten supply lines as

well as keep more food income in the state.

Efforts to increase the availability of local foods have focused mainly on expanding the capacity for cultivating food, including commercial agriculture. A recent report for the Alaska Food Policy Council stresses the infrastructure needs of a robust agriculture industry (Meter & Goldenberg, 2014; see also Stevenson, Alessa, Kliskey, Rader, Pantoja, & Clark, 2014). Although gardening has played a role in local foodways through the last century, for Alaska Natives as well as non-Natives, it did not become a primary source of food; therefore, past attempts at instituting agriculture were seen as failures (Loring & Gerlach, 2010). However, efforts to increase agricultural production within Alaska have continued. The Alaska Grown advertising campaign seeks to brand food grown within the state, and Alaska has an active, though financially challenged, farm-to-school movement. There are also efforts to increase the number of community gardens (McCoy, 2015; Meadow, 2013), primarily in urban areas. Similarly, interest in year-long gardening is increasing, often accomplished by repurposing abandoned buildings and shipping containers (DeMarban, 2015, 2016).

It is acknowledged in this discourse that income shapes people’s ability to purchase local produce or engage in gardening. Alaskans with higher incomes are more likely to consume foods from their gardens and purchase food from farmers; conversely, Alaskans with incomes below the poverty level are least likely to consume food from their gardens or purchase from farmers (Meadow, 2012; State of Alaska Department of Health and Social Services [DHSS], Obesity Prevention and Control Program, 2013). Some efforts to increase access to locally grown produce target people with low incomes; for example, in line with national trends, the number of state-sanctioned Alaskan farmers markets has increased from 13 in 2005 to 41 in 2014 (Naegele, 2015) to 43 in 2017 (Buy Alaska Grown, 2017). In order to become more accessible to low-income people, some of these markets accept Supplemental Nutrition Assistance Program (SNAP; food stamps) payments. Furthermore, pantries and emergency kitchens across the state are piloting garden programs and strengthening relationships with

farmers. Nonetheless, the role of poverty in the locally grown and/or disaster preparedness discourse pertaining to food security has been minimal, though those whose cupboards are already most bare will suffer most if food supplies are disrupted.

A second discourse on food security in Alaska is centered around Alaska Natives and traditional foods. The hunting, fishing, and gathering practices of Alaska Natives are called “subsistence,” but it varies whether this term refers only to harvesting and economic activities (e.g., Fall, 2016; see also Theriault, Otis, Duhaime, & Furgal, 2005) or to an entire worldview (Fienup-Riordan, 1991). Within Native communities, a holistic approach to subsistence is seen as an integral part of food security (Inuit Circumpolar Council-Alaska, 2016). Subsistence continues to be important socially and culturally; many studies address how procuring and sharing subsistence foods can help maintain the cultures of peoples devastated by colonization (Duhaime, 2002; Schuster, Wein, Dickson, & Chan, 2011; Thornton, 1998). In addition, the nutritional superiority of these traditional wild foods, mostly proteins, has been well demonstrated (Bersamin, Luick, King, Stern, & Zidenberg-Cherr, 2008; Bersamin, Zidenberg-Cherr, Stern, & Luick, 2007; Kellogg et al., 2010; Nakano, Fediuk, Kassi, & Kuhnlein, 2005). Although these foods are “local” in a geographic or relational sense, they are not described as such. Rather, they are “subsistence foods.”

The threats to food security in this discourse focus on *which* foods are considered “sufficient, safe and nutritious” and on the evidence suggesting that climate change is affecting the quality and availability of wild foods. For example, deformed animals and changing migration patterns affect the availability of animals for hunting (Guyot, Dickson, Paci, Furgal, & Chan, 2006; Herman-Mercer, Schuster, & Maracle, 2011; Kraemer, Berner, & Furgal, 2005; Pearce, Ford, Willox, & Smit, 2015).

In contrast to culture, poverty plays a limited role in the Native and subsistence-focused discourse on food security. Yet Alaska Natives are disproportionately likely to be economically poor. The boroughs and census tracts with the highest rates (over 20%) of “related children in poverty in

the past 12 months” are Native-dominant areas (U.S. Census Bureau, 2017). Economic issues are acknowledged in the literature concerning food security in Alaska Native villages insofar as the very high cost of market foods in the smallest villages—typically villages off the road system and at the very end of supply lines—has been tentatively identified as a driving force contributing to the increasing migration to cities (Fazzino & Loring, 2009).

The fact that subsistence discourse is limited to Alaska Natives honors the cultural importance of hunting, fishing, and gathering in those societies. However, this discourse obscures how consequential wild foods can be for non-Natives, especially those with low incomes. Many Alaskans of other backgrounds also participate in hunting and fishing, but there is a widespread perception that these activities are merely hobbies for non-Natives, without additional significance. Indeed, it is Alaskans with higher incomes who are most likely to harvest wild foods (State of Alaska DHSS, 2013). Alaskan residents may qualify for low-income sport fishing, hunting, and trapping licenses (Alaska Department of Fish and Game, 2017). However, the extant evidence—which is sparse and lacks granularity—suggests other high costs of entry. In 2011, resident and nonresident hunters in Alaska spent US\$335 million on hunting, fishing, and auxiliary equipment, excluding travel, license, permits, fees, and related costs (U.S. Fish and Wildlife Service, 2014). Furthermore, the costs associated with hunting and fishing are not strictly financial. For example, hunting can exact temporal costs that lower-income individuals may find difficult to meet. Hunters in southeast Alaska averaged 8.3 hunting days per deer in 2013 (Alaska Department of Fish and Game, Division of Wildlife Conservation, 2015).

The cultural focus of the subsistence discourse notwithstanding, one of the few studies to be conducted with a mostly non-Native, non-urban sample found that local seafood in one area was a significant contributor to food security, with the effect strongest for those with the lowest incomes (Loring, Gerlach, & Harrison, 2013).

A third discourse on food insecurity is more prominent nationally than locally: food insecurity driven by economic insecurity. Alaskan annual mean wages are significantly higher than the

national average, US\$57,000 compared to US\$49,000 (U.S. Bureau of Labor Statistics, 2017). But high costs of living, including higher costs of food, undercut that advantage (Fazzino & Loring, 2009). As Alaskans across the economic spectrum and state become more engaged with cultivated and wild local foods, it is vital that Alaska's poor, already the most vulnerable group, not be forgotten.

Poverty and food insecurity

Within this discourse, scholars and advocates have explored the deleterious effects of food insecurity on health. Many studies document the links between food insecurity and obesity, which are often co-morbid conditions created by improper nutrition (e.g., O'Malley, Peltier, & Klein, 2012; Wilde & Peterman, 2006). Diabetes and high blood pressure are exacerbated by food insecurity, and hungry people suffer from these diseases at higher rates than the overall population (Seligman, Bindman, Vittinghoff, Kanaya, & Kushel, 2007; Seligman, Laraia & Kushel, 2010). Both food insecurity and its associated health challenges contribute to overall family stress, which can have additional adverse effects on health (Cook & Jeng, 2009).

The negative consequences of food insecurity on children's development across multiple domains are especially serious (Belsky, Moffitt, Arseneault, Melchior, & Caspi, 2010; McLaughlin, Green, Alegria, Costello, Gruber, Sampson, & Kessler, 2012; Murphy, de Cuba, Cook, Cooper, & Weill, 2008). The effects of food insecurity on children's physical and mental health have been widely documented; for example, young children in food-insecure households are more likely to be obese, be hospitalized, and have health conditions such as iron-deficiency anemia (Casey et al., 2006; Ettinger de Cuba et al., 2012; Zaslow, Bronte-Tinkew, Capps, Horowitz, Moore, & Weinstein, 2009). The role of school meals in overall child well-being has received particular attention, and a number of reports have looked at the link between food security and positive classroom performance and behavior (Adolphus, Lawton, & Dye, 2013; Cook & Jeng, 2009; Cotti, Gordanier, & Ozturk, 2017; Jyoti, Frongillo, & Jones, 2005). Much of the

research regarding children focuses on nutrition, but these effects are often evident even when children are not physiologically hungry (Connell, Lofton, Yadrick, & Rehner, 2005; Fram, Frongillo, Jones, Williams, Burke, DeLoach, & Blake, 2011), suggesting that the phenomenon is more complicated.

We see these same effects in Alaska. The best available data about food-insecure Alaskans come from a state report that is part the Hunger in America study (Feeding America, 2014), a national survey of people who use the charitable food system and/or federal commodities programs (in Alaska, those surveyed are clients of Food Bank of Alaska's network of partners). *Hunger in America – Alaska* tells us that one in five Alaskans turn to the charitable food network each year. Among these users, about 33% are children, 13% are seniors, and 23% have at least one veteran in the household. Sixty percent of respondents have at least one adult in the household who has worked for pay in the last year, but 53% have incomes below the federal poverty level.

The report shows that the same previously discussed health effects associated with food insecurity are reported by Alaskans, with 26% of households having a member with diabetes, and 47% having a member with high blood pressure. Finally, 34% report having no health insurance and 56% report having unpaid medical bills, which underscores the intersection between food insecurity, health, and poverty. Respondents report using a number of strategies to cope with their food insecurity, including purchasing inexpensive, unhealthy food (81%), eating food past the expiration date (71%), and watering down food and drinks to make them last longer (37%).

The research discussed here builds on the *Hunger in America – Alaska* report and further incorporates poverty into the discussion of Alaskan food security specifically within an underexamined geography that has parallels in northern Canada and, perhaps, the American mountain West.

Accessible rural communities: A neglected slice of (sub-)Arctic North America

This research focuses on a neglected demographic slice of Alaska: accessible rural communities.

Statewide statistics on food security do not distinguish between rural and urban Alaskans, thereby allowing the conditions in Alaska’s few cities to dominate the statewide picture. Some state reports (e.g., Feeding America, 2016) divide the data according to boroughs (counties), a broad geographic and administrative division that includes communities of diverse population demographics and size. At that level, the data best illustrate the divisions between the more densely populated southeast and south-central regions versus the less populated and more isolated west and north, but they still overlook consequential differences among communities within regions. Many research reports that address conditions in rural Alaska base their examinations on a narrow definition of rural, as indicated by featuring remote, fly-in communities that are predominantly Alaska Native. “Those living in rural communities and practicing traditional subsistence activities, or those living in urban Alaska and shopping at grocery chains or farmers markets” (Snyder & Meter, 2015, p. 21) is the contrast made between rural and urban communities in one representative publication. A recent synthesis of Northern food security research includes in its background statement, “residents of the North, who are by and large Indigenous people” (Loring & Gerlach, 2015, p. 381).

Arguably, the narrow use of *rural* explains why the subsistence discourse has overshadowed the poverty discourse. Yet Alaska has many non-urban communities that are populated mostly by non-Native people and are accessible by surface transportation (Burke & Durr, 2015). With very few exceptions (e.g., Loring, Gerlach, & Harrison, 2013; Sadleir-Hart, 2014), these communities are absent from the food-security literature.

For this exploratory study we developed a typology of Alaskan communities inspired by the U.S. Department of Agriculture’s (USDA) “frontier and remote” (FAR) codes. FAR codes provide a ranking system of four categories based on the distance to cities and towns of selected sizes and, therefore, also represent the distance to a

variety of services, including food outlets (Cromartie & Nulph, 2016). But whereas the FAR codes assume that distance from town serves as a proxy for accessibility, our typology includes the additional dimension of isolation, defined by whether a community can be reached by road or ferry, or only by air. We put Anchorage, by far Alaska’s largest city and the statewide hub for all services, into its own category. We then made a category of Fairbanks and Juneau, both of which are, in addition to being the next two largest cities in Alaska, important hubs for their regions and accessible by road or ferry. We also included in this category Wasilla and Palmer, the largest towns in the fastest-growing region of the state and only about 40 miles (64 km) from Anchorage and all of its services. We considered none of these communities to be rural by Alaskan standards. All other communities fall into one of four categories of rural. They can be located in a 2x2 grid (see Figure 1).

We explore the ways low-income Alaskans in road- and ferry-accessible rural communities are utilizing both cultivated and wild local foods. This project grows out of a long-standing partnership between the university-based first author and Food Bank of Alaska (FBA). The second author was the primary FBA representative for this study. She was the primary contact for pantry representatives, conducted many of the interviews, and collaborated on data analysis. The original qualitative study was intended to supplement the quantitative *Hunger in America* study and learn how people using food pantries experience their food-related problems and cope with them on a day-to-day basis.

Figure 1. Typology of Rural Alaskan Communities

		ISOLATION	
		On road and/or ferry system	Off road and/or ferry system
SIZE & SERVICES	Small to Very Small (population up to approx. 3,000, with limited services)		
	Medium to Large (population of 3,000 or more, with greater number of and more complex services; may be regional hub)		

Sample and Research Methods

Community sampling was driven by our interest in accessible rural communities and by the presence of FBA partner-pantries. The sample pool of accessible rural communities was restricted to those with pantry managers able and willing to assist with recruiting participants. From that sample pool, communities were purposefully sampled to obtain a variety of community sizes.

Our community sample included nine communities. Three are on the road system, five are accessible by ferry, and one is accessible by both. They vary in population size, ranging from about 800 to about 9,000, with an average population size of about 3,700 (State of Alaska Department of Labor and Workforce Development, 2017). Some are rural in the sense that they consist of small, spread-out populations, characteristics which are familiar to people in other U.S. states. Other communities are larger and somewhat more densely populated, but are isolated. We place three communities in the Small-Very Small category and six in the Medium-Large category. That pantries are more likely to be located in the Medium-Large category illustrates how these communities offer more services, although these services are still fewer and more modest than those offered in communities excluded from the typology. Community-level poverty information is not uniformly available, but, for the five communities for which data were available, the percentage of people in poverty for the period 2011 to 2015 ranges from 7.9% to 12%, compared with the statewide figure of 10.3% (U.S. Census Bureau, 2017). Most of these communities are in boroughs that have slightly lower official rates of food insecurity (according to USDA scales) than the 14.2% statewide average (Gundersen, Satoh, Dewey, Kato, & Engelhard, 2015).

We used a process approved by the institutional review board (IRB) for recruiting and interviewing our convenience sample of individual participants through the spring of 2013. Pantry managers provided initial information about the study to food recipients; we interviewed most of those who indicated interest, usually in spaces provided by pantry staff and/or volunteers. The one-on-one interviews were audiorecorded and

professionally transcribed. Each participant was given a pseudonym.

Sampling was limited by scheduling and the cost of travel. Although the communities are accessible by ground transportation, time constraints demanded that we fly to most of them and spend only one to two days in each location. We interviewed 34 adults, which corresponds to between one and seven individuals in each community with an average of 3.7 in each. Demographic information on individual participants and their households is provided in Table 1.

Drawing on the general literature on poverty and food security, we asked for narratives about the family's food and eating. Interviews were organized around five domains: what the family is eating, what they would like to eat, what sort of experiences they have had with the pantry, how they procure food besides at the store and the pantry, and what worries they may have about having enough food. We requested details grounded in their daily lives. For example, regarding what the family eats, we asked about "dinner last night": what was served, who prepared it, where the ingredients came from, and who ate it. Then, we asked if that was a typical meal, which prompted most participants to describe other common foods that they eat. Likewise, regarding what the family would like to eat, we asked them to describe "a good meal—not a special meal or holiday meal, but something you would feel good about serving your family" and probed again about cooking, ingredients, and where the food was obtained. The three domains of interest for this paper are food consumed, food desired, and how food was procured.

Although much of the power of qualitative research lies in the analyst's freedom to be open to the unexpected, the interview structure provided a trellis on which to grow the story told by the data. Analysis began concurrently with data collection insofar as we discussed what stood out as we conducted even the earliest interviews. More formal inductive coding began as the first interviews were transcribed and imported into NVivo software (QSR International, 2012). During this process, we drew on grounded theory for coding procedures (Charmaz, 2005; 2014; Corbin & Strauss, 2008).

We close-coded 10 transcripts to identify the themes of greatest surprise and interest. It was at this stage that the importance of local foods became clear, and it was at this stage that we speculated about access to local foods being related to food insecurity. Although we had intentionally

Table 1. Participant and Household Demographics

	# (N=34)	Percentage (of total unless specified)
Race^a:		
White only	29	85%
Alaska Native	4	12
Black	1	3
Biracial or multiracial (overlaps with Native and Black)	3	9
Sex:		
Female	23	68
Male	11	32
Household composition (cate- gories not mutually exclusive):		
Living alone	7	21
At least one senior	6	19
At least one minor child	17	50
Employment in household:		
At least one working adult	19	56
Full-time, year-round	6	18
Part-time or seasonal	13	38
Use of means-tested assistance (categories not mutually exclusive):		
Temporary Assistance to Needy Families (TANF; “welfare”)	1	3
Supplemental Nutrition Assistance Program (SNAP; “food stamps”)	19	56
Free or reduced school meals	12	70% of households with children
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	11	61% of households with children or pregnant woman
Any (e.g., Medicaid, Supplemental Security Income [SSI])	29	85

^a Individual participants; two White participants mentioned during their interviews that their spouses or partners were people of color, such that households are more diverse than indicated here.

asked about involvement with local food systems, we had not expected it to play so prominent a role for this low-income, mostly non-Native sample. Our questions, comments, and notes from conversations were documented in memos. We reviewed additional literature on local foods to further sensitize us to details and nuances of participants’ experiences. Analysis became a conversation between our data and the broader discourse.

We presented our findings to the Alaska Food Coalition, a group of pantry managers and other service providers with experiential expertise in the lives of pantry users, as a form of member checking. The Coalition endorsed the overall themes, and several members shared their own examples.

We divide our discussion of the findings into two main sections: a description of how people engage local foods and an analysis of barriers and facilitators toward accessing local foods.

Findings: Engagement with Local Foods

Ninety-one percent of our sample (31 of 34 households) accessed local foods (both cultivated and wild) at least occasionally. Only one of those families relied solely on gifting or trading, rather than direct household participation in growing and harvesting activities, to obtain local foods. Across the sample, fish was the type of local food most often consumed (see Figure 2).

Accessing Local Foods

There are four mechanisms through which families in our study accessed local foods. First, household members hunted and/or fished. Second, household members gathered berries and wild greens. Third, they gardened privately (and in one case, also raised chickens). Fourth, someone else gifted or traded game meat and/or fish to the family.

Notably, gathered foods and cultivated produce were not gifted or traded. One new family was given jelly made from local berries as a welcome gift, but otherwise no participants mention receiving wild fruits and vegetables. Similarly, almost half of the participant families attempted home gardens, or planned gardens for

the approaching summer, but no one reported being given home-grown produce, even in small quantities. This group also did not participate in organized community gardens; indeed, no one mentioned the existence of community gardens.

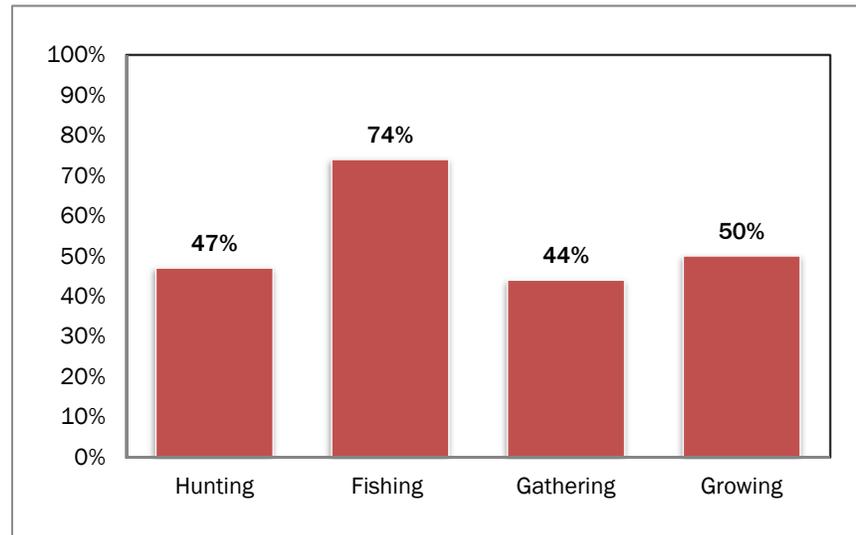
Furthermore, purchased local foods are strikingly absent in the data. Participants in four of the nine communities acknowledged seasonal farmers markets, but only when asked directly. Even after prompting, no one reported purchasing food at one. Some participants explicitly described the farmers market as too expensive; others seemed only vaguely aware of farmers markets and uninterested in learning more. Likewise, community supported agriculture services were mentioned by a few people as desirable as part of “good meals,” but no one participated in such activities. In addition, no one talked about other ways of accessing commercially cultivated local foods.

No one indicated that they purchased local fish either, and because selling game meat is illegal, purchases of that nature are likewise not indicated. One man in the southeastern region, where seafood is especially abundant, does not himself fish and so eats very little fish: “You know, [there’s] the occasional fish I get from my sister. Otherwise, you don’t see anything around and that’s what always has amazed me, you know....[I expected] more of a—well, like a fishmonger set-up.” Others have identified the irony in buying Alaskan fish by way of Seattle, and there is emerging recognition that local fishmarkets are worth exploring (e.g., Wohlforth, 2015).

Appeal of Local Foods

Participants in our study evinced little interest in “local” food as such. Those who bought produce at the grocery store indicated neither knowledge of nor interest in its origins. But almost all participants wanted higher-quality, fresher foods, which in these communities is often synonymous with

Figure 2. Percent of Sample Engaged in Local Foods *



* includes both household participation and gift or trade arrangements

local. Also, in a state that still prides itself on its frontier heritage, raising, harvesting, and/or hunting one’s food is a socially desirable marker for independence and self-sufficiency.

Healthy eating. As a group, these low-income Alaskans have received the public health message that fresh fruits and vegetables, whole grains, lean meats, and fish are the most nutritious foods. With the exception of grains, these are exactly the local foods that are seasonally available in accessible rural Alaska.

Many participants expressed regrets regarding the compromises they had to make regarding food quality. For example, some participants commented on the limited choices at the pantry as well as the strategies they employed in using it, such as timing their visits to get the most choice. Some participants volunteered that they or family members have diet-related health conditions, such as diabetes and heart conditions. While participants uniformly expressed gratitude to the pantries for providing any food, they recognized that what they typically received there, or what they could afford at the store, were not the recommended healthy foods.

“Good meals” consistently included salad or other fresh vegetables; however, when asked what participants ate “last night,” few people in our sample ate fresh food. The absence of produce in

people's current eating was somewhat attributable to the season. We interviewed people in the spring when gardeners had used up last summer's harvest and when purchased food came from even greater distances. Those who did eat fresh vegetables purchased bagged salads, carrots, and potatoes.

Other participants who desired fresh food, however, ate little of it even in the summer when it was more readily available. Many people commented on the lackluster quality and high prices of produce in stores. In one region where there is some commercial agriculture, and perhaps more local vegetables at grocery stores, participants said that transportation issues forced them to shop at smaller stores that were less likely to carry produce.

Meat quality was criticized as well: "The beef in the store really isn't that fresh, and it's really expensive," said one woman who ate local deer when possible. Those who did not eat Alaskan game and fish reported little meat and no fish on their tables, although meat was almost always included in the descriptions of "good meals." Several people identified specific animals, such as moose, in their descriptions of "good meals." Only one household identified as vegetarian by choice.

Self-sufficiency: Almost everyone in our sample expressed a strong desire for self-sufficiency, and this desire manifested in the satisfaction participants gained through engaging with local foods. One man's direct expression of this summarized the sentiments of others: he preferred to eat "something I raised myself or hunted, I'd rather. Much rather." Another participant elaborated on this theme. "I have a lot of fun going out hunting and processing [the meat], and you know, kind of take pride in how we process our meat." Likewise, on the topic of home-grown fruits and vegetables, this woman spoke for several of her peers: "The vegetables here [in the store] are just not that great... Besides that, I just enjoy it. I live for summer so I can go out and pick berries and grow my own vegetables." Still, these are people whose enjoyment came second to economic realities, as with this woman who wanted to garden but could not: "[What with] having to buy good soil and all this stuff, it's like, you might as well just buy it from the grocery store."

It is also important to many people that local

food helped them feel more independent, and perhaps less reliant on charity or the government. We return to this theme of self-sufficiency below.

Findings: Barriers and Facilitators for Engagement with Local Foods

While almost everyone in our sample shared a preference for local foods, access to those foods varied. The families in our sample fell into three distinct levels of engagement with local foods, categories created by the first two authors (Table 2). Where we did not initially agree, we discussed the transcript until we reached agreement. The detail from the interviews was crucial for the sorting; for example, direct participation with wild foods ranged from berry-picking once a year with the kids to extensive effort invested in harvesting and processing food for winter. Some households whose access to local foods was mostly indirect (through gifts and trades) still qualified as more highly involved if they ate a lot of it and/or they were very active in processing it. The categories should be understood as ordinal rankings rather than precise measures. After determining the levels of engagement of the families in our sample, we then compared the groups to discern what factors contributed to the differences.

Table 2. Level of Involvement with Local Foods

Level of involvement	Number of households (N=34)
High	11
Medium	13
Low or none	10

Three Levels of Engagement

The High Involvement group consists of 11 households. These families were the most engaged with local foods across the four mechanisms of procuring them. Two families (18% of this category) were involved in all four: they hunted and/or fished, gathered, gardened, and received wild proteins from others. Seven more families (64%) participated in three strategies, and the remaining two families participated so extensively in two mechanisms that the foods composed an

important part of the family diet.

Ten households relied heavily on local meat and fish. Eight families (73%) participated directly in hunting and/or fishing; two others used to hunt and/or fish, but key family members had been disabled, thus preventing them from participating. Seven of these 10 households (63%) also gifted and/or traded fish and game.

Seven of the 11 families also gathered other wild foods, and, in contrast to the families categorized as less involved, a majority of these families picked more than just berries, gathering beach asparagus, fiddlehead ferns, twigs and bark, and seeds. Few collected enough food other than berries to store into the winter, but what they collected allowed them to purchase less commercial food in season.

Finally, eight of the families in this group also gardened, some doing so extensively. One woman, in fact, was still using her stores of home-grown food for “last night’s” meal in March (though it was canned, not fresh). Others did not put away as much but described a variety of home-grown vegetables they ate during the summer.

The Medium group consists of 13 households. Fewer of the families in this category participated in any of the four strategies for obtaining local foods, and none of them participated in all four. Almost the same proportion of families (61%) as in the High Involvement group traded or were gifted meat and fish; however, they did so less often and received less food overall. The area of sharpest decline was gardening (31% in the Medium group vs. 73% in the High Involvement group); only four of the 13 families gardened at all, and even the one family that grew a variety of vegetables characterized their gardening as “more like a hobby” than a significant source of food.

The Low Involvement group consisted of 10 households. Three households in this category (30%) did not engage with local foods at all, and the remaining seven were those who were involved very little. For example, five families were gifted meat or fish but infrequently and in small quantities; they were treats rather than regular parts of the family diet. No one in this group hunted, and the two families who fished were minimally successful; for example, one person new to her

coastal community was still trying to adapt her knowledge of lake fishing to sea conditions. Likewise, the few who tried to garden were able to harvest little usable food. Two families (20%) gathered berries, but only as part of an afternoon’s outing.

Contributors to the Differences

Given the superior quality of both cultivated and wild local foods, it would follow logically that those who are eating more of them are eating better. Furthermore, those who can store local foods are better prepared for a disaster or disrupted supply lines. The differences among the three groups point to opportunities for enhancing food security for those with less access.

Quotes from two of the most successful gardeners, both in the High Involvement group, demonstrate what set them apart from their less engaged, less successful counterparts in the sample.

Christine: Rhubarb comes up every year, and I grow potatoes every year and garlic. Onions don’t do real good, but I’ve got onions going again, trying to. I’ve given up on the tomatoes. They don’t do good. Swiss chard and kale, spinach... And if they do good enough, I’ll can them. Otherwise, we just eat through the summer.

Anna: [My grandparents] always had a garden, and I’ve always tended the garden. So it kind of comes natural. And my mom’s got a green thumb, as well... I’m kind of proud of it because, you know, we’re here in Alaska in the boonies and it’s really hard to maintain a lot of stuff. But my mom’s got these beds, and we actually built these things to go over the beds that we put plastic on to make them like another hot bed so they can grow faster and maintain the heat and stuff. So it’s like another greenhouse.

Between them, Christine and Anna referred to multiple advantages: knowledge of gardening through years of experience and family mentors; a sense of experimentation and persistence; and specialized equipment and the knowledge of how

to use it, such as a greenhouse, tunneled hot beds, and pressure cookers for home canning. The importance of these elements is highlighted by the contrast with would-be gardeners in the Medium Involvement and Low Involvement groups, who speak to the lack of certain items or voice uncertainty about how to do things.

For example, several people wanted greenhouses but could not afford one or had nowhere to put it. They explained that, without a greenhouse, the growing season is too short or too wet for the desired vegetables. Knowledge and equipment play important roles in how such a dilemma was handled. Christine wanted tomatoes but lacked a greenhouse, and she knew enough about gardening to adapt what she planted. Anna, a third-generation gardener, grew a variety of vegetables in her greenhouse (including tomatoes) as well as in elaborate covered and uncovered beds. Both had homes with yards and had lived in their communities long enough to have figured out what could be grown there. In contrast, a family in the Low Involvement group only grew carrots, an easily cultivated crop. A few families who had not gardened in the past indicated they hoped to start the next summer.

Among the families who processed and stored produce, canning was the method of choice. However, it required not only a pressure cooker but jars and knowledge of the canning process. One Highly Involved participant canned not only her own vegetables but sometimes extra purchased food as a way of extending her SNAP benefits: “Every once in a while, probably like every six months, we will buy, like, 50 pounds worth of chicken or hamburger if it’s on sale, and we can it. And so it lasts longer and stays fresh.” In contrast, another woman described trying to can with her sister. She not only had to use her sister’s equipment but was still figuring out the process: “I’m the novice, and she’s the expert at canning. It’s such a process. Like one time, I was putting the lid on, and she goes, wait, you’ve got to wipe the edge because the seal...”

Although they did not remark on it, Christine and Anna also had another key ingredient for gardening: sufficient soil. In two southeastern coastal communities, several people identified lack of soil as a barrier that prevented them from gardening.

One woman wanted to grow more food and used old dinghies for raised beds; however, she could not afford to purchase soil, nor did she have access to any in her yard. She commented, “If I could grow more stuff, I’d be happier, but finding dirt here is like—when you live on a rock—it’s terrible, unless you go buy it, and I can’t do that. I spent [US]\$70 one year on dirt for one boat.”

With hunting and fishing, too, the High Involvement families’ advantages were made clear by their absence in the other groups. Few of the hunters in any group mentioned weapons, for example, yet a man in the Low Involvement groups says he did not hunt because he was not allowed to have a gun. Fishing in most coastal communities required a boat, and several coastal participants named the lack of a boat as a barrier. In this case, the High Involvement coastal families who fished did mention boats, typically to explain that, while they did not own boats themselves, they had access to friends’ or relatives’ boats. But, whether one had access to a boat was not the only issue because boats, like cars, needed fuel. Several people commented on the ongoing transportation costs required by hunting and fishing, which created another barrier in and of themselves.

Hunting and fishing potentially provided significant amounts of food, but then storage became an issue. Whereas High Involvement participants casually referred to freezing their meat, one family lived in a camper and had to borrow freezer space from a friend, making the food they did procure harder to eat on a regular basis. Fish could be canned as well, but the process brings into question the same equipment and knowledge issues identified earlier.

Finally, technical knowledge was necessary for safely processing hunted meat. The successful hunters must have had the requisite knowledge but were notably silent about how they learned. The flow of some interviews hinted that participants’ lengthy tenure in Alaska contributed to their acquisition of hunting knowledge.

Local Foods and the Safety Net

Use of the social safety net has been characterized as a “life-course event” because it is so common (Rank, Hirschel, & Foster, 2014). Nonetheless,

most pantry users in our sample perceived assistance as compromising their dignity. Many described the emotional effort required to come to the pantry the first time, but the friendly reception from staff and/or volunteers often helped and some participants were simply resigned to the necessity of coming. But whereas the pantry could be seen as a back-up food source for emergencies, even among those who used it regularly, there is a pattern suggesting that applying for federal programs entails admitting defeat at a deeper level. It appears that the ability to harvest local foods—to hunt and fish, especially—may make it possible to decline some forms of public assistance. One man spoke for several participants: “We’ve been through it [SNAP/food stamps and WIC] before and it’s just not worth it, you know. You get that hungry, I’ve got a subsistence license and a rifle. I can go find something if I have to, you know. And that [knowing I have options] makes it a lot easier to be able to come here [to the pantry] sometimes.”

Indeed, we find a tentative relationship between the use of SNAP and involvement with local foods: 70% (7 of 10) of those in the Low Involvement category received food stamps, while only 45% (5 of 11) of the High Involvement category received them. Recall that the levels of involvement are our ordinal rankings and are not mathematically meaningful; we did not run tests of significance and must interpret this comparison cautiously. Nonetheless, it is possible that greater involvement with local foods shapes whether eligible people choose to participate in SNAP. The two groups appear roughly equivalent on the level of income and overall need. The groups are similar in their use of other means-tested assistance programs (8 of 10 Low Involvement vs. 9 of 11 High Involvement). Furthermore, nothing in the interviews suggested that the two groups were different in terms of income or other eligibility criteria for SNAP. This preliminary finding is worth pursuing in future research, as it may point to an unmeasured difference between recipients and eligible nonrecipients of SNAP, a difference that often confounds studies concerning SNAP participation effects (Vartanian, Houser, & Harkness, 2011).

Discussion

The experiences of food pantry users in accessible rural communities powerfully illustrate how the three discourses of Alaskan food security come together in people’s lives. These are people who want quality produce, which, in Alaska, means local produce. Our sample includes many who are willing, even eager, to cultivate their own food when they can. These are people who want quality proteins, and our sample includes many who are willing, even eager, to hunt and fish for their own when they can. These are people whose incomes are very limited, as indicated by their participation in food pantries as well as their eligibility for and participation in a variety of means-tested programs.

Yet the experiences of these pantry users call into question some assumptions within the usual discourses. Produce that is “locally grown” is not itself valued or even acknowledged. For these low-income families, “local” produce is not constituted by food they bought. Rather, it is produce that they grew or animals that they—or family members or friends—caught and killed. The important role that these home-grown, “local” foods play in these non-Native communities loosens the tight link between Alaska Native identity and subsistence as an economic activity. Hunting and fishing (and gathering) are much more than economic activities for Native peoples, and it is not our intention to diminish the unique meanings that subsistence has for Indigenous cultures. Nonetheless, we must acknowledge fish and game as “local” foods, and after some investment, as inexpensive foods for Alaskans from other backgrounds as well.

To speak of “culture” in the context of these mostly non-Native, rural pantry users may be appropriate. Culture is in part about group-level values and perceptions of what is right or preferable. Non-Native Alaskans often equate hunting and fishing with their Alaskan identity, regardless of whether they themselves hunt and/or fish (Thompson, 2008). In this way, self-sufficiency offers a perceived link and continuity to an ephemeral pioneer spirit (Brown & Burch, 1992). In that vein, it is striking how many in our sample expressed pride regarding their engagement with local foods and framed their pantry use as an emergency measure regardless of use frequency.

Similarly, some High Involvement families may have declined programs such as SNAP because of their access to local foods. This pattern of preference for self-reliance points to what Letwin (1993) calls the “vigorous virtues”: an inclination to be “upright, self-sufficient, energetic, adventurous, [and] independent-minded” (p. 33). Such a cultural preference or orientation might resonate with certain parts of the Canadian North (e.g., the Yukon Territory and northern sections of many provinces) as well as the American Rocky Mountain West. Like accessible rural Alaska, these regions have communities that may be reached by ground transportation, are far from major urban centers, have long traditions of hunting, and have significant Indigenous populations. However, they may not be near-exclusively Indigenous, unlike reservations and reserves or remote communities in Nunavut, for example. The findings of this exploratory, localized study cannot be generalized to these other communities in a strict sense but may be cautiously transferred.

Implications for Policy, Practice, and Future Research

This study establishes the importance of increasing poor people’s opportunities to garden, gather, hunt, and fish, as local circumstances permit. Programs intended to increase these opportunities must frame their goals, both publicly and directly with clients, as precursors to self-sufficiency.

Advantages that we found help the families already more engaged with local foods could be shared with a greater proportion of the pantry-using population. Policymakers might experiment with making certain public assistance programs more flexible—for example, by allowing recipients to purchase fishing or storage supplies without reducing the base financial allotment on which they depend. In environments where increased “welfare” funding is not politically viable, providing a platform for people to be concretely more self-sufficient might be a better alternative. Charitable organizations can play a role as well, perhaps by sponsoring food-related sharing programs. As bicycle sharing programs are a service delivery adaptation for an urban context, a fishing-gear sharing program is a possible service adaptation for a rural context, in which pantries or

other entities purchase, share, and teach the use of items such as pressure cookers and vacuum packers. More pantries might host and organize gardens. Such programs could allow clients to promote virtues of self-sufficiency and self-efficacy while receiving assistance that, devoid of social stigma, would be desired. Research to explore community attitudes and ideas around gear sharing can be a first step in program implementation by using community insights to develop the program specifics and increase community buy-in, thus increasing the likelihood of a successful program.

In our sample, engagement with local foods happens outside the commercial system. This also suggests that there may be additional markets for local food, as demonstrated by the pilot projects enabling SNAP to be used in farmers markets. However, our study suggests that such efforts must be portrayed as providing access to better and more affordable foods rather than as providing increased access to “local” foods, as such a portrayal will not appeal to this population. If and when local fishmarkets are organized, SNAP should be accepted from the beginning.

This study did not address whether there are low-income, accessible-rural Alaskan families whose involvement with local foods is so extensive that they do not need food pantries. Future research should explore how these families achieve this degree of self-sufficiency and what, if any, aspects may be duplicated at a community level.

The study also did not attempt to measure food or nutrient intake of participants. Future research should examine individual and family food intake according to a variety of scales (e.g., three-day or 24-hour journals) to explore in more detail the difference that local foods make to diet quality in a sample of low-income residents.

Additional research should expand upon the population typologies in Alaska as described in this paper. Whether the distinctions between accessible and non-accessible rural communities in Alaska are unique requires additional examination beyond the scope of this study. Such research should provide consistent and actionable classifications of rural and urban divisions. Comparisons may be sought between rural accessible Alaska and potentially

similar communities in northern Canada and isolated regions of the western United States.

Conclusion

Even the study participants who ate the most local foods used the food pantry, indicating that local foods were no panacea. In part, local food sources could be unpredictable; for example, some years are simply bad years for harvesting. One participant explained that much of what brought him to the pantry was that “this last year we didn’t get a moose...and 800 pounds of meat goes a long

way.” Another participant usually grew and stored carrots, but “last year was a poor year. It was too cold and wet.” In addition to the unpredictability of the natural environment, there were human factors as well. One family had to leave their home for almost a month for medical care, as there are few specialists even in these relatively accessible communities, and someone raided their freezer of fish while they were away. Despite the issues that can arise, having access to a variety of local foods must be part of the response to poverty-related food insecurity. 

References

- Adolphus, K., Lawton, C. L., & Dye, L. (2013). The effects of breakfast on behavior and academic performance in children and adolescents. *Frontiers in Human Neuroscience*, 7. <https://doi.org/10.3389/fnhum.2013.00425>
- Alaska Department of Fish and Game, Division of Wildlife Conservation. (2015). *Species management report: Chapter 3: Deer management report*. Retrieved from http://www.adfg.alaska.gov/static/research/wildlife/speciesmanagementreports/pdfs/deer_smr_2015_3_chapter_3_unit_1c.pdf
- Alaska Department of Fish and Game. (2017). *Product prices: Licenses, stamps and tags*. Retrieved from <http://www.adfg.alaska.gov/index.cfm?adfg=huntlicense.prices>
- Andrews, L. (2016, September 28). With food security issues looming, Alaska tries again for emergency food caches. *Alaska Dispatch News*. Retrieved from <https://www.adn.com/alaska-news/article/state-alaska-tries-again-build-emergency-food-cache/2013/12/11/>
- Belsky, D. W., Moffitt, T. E., Arseneault, L., Melchior, M., & Caspi, A. (2010). Context and sequelae of food insecurity in children's development. *American Journal of Epidemiology*, 172(7), 809-818. <https://doi.org/10.1093/aje/kwq201>
- Bersamin, A., Luick, B. R., King, I. B., Stern, J. S., & Zidenberg-Cherr, S. (2008). Westernizing diets influence fat intake, red blood cell fatty acid composition, and health in remote Alaskan Native communities in the Center for Alaska Native Health Study. *Journal of the American Dietetic Association*, 108(2), 266-273. <http://dx.doi.org/10.1016/j.jada.2007.10.046>
- Bersamin, A., Zidenberg-Cherr, S., Stern, J. S., & Luick, B. R. (2007). Nutrient intakes are associated with adherence to a traditional diet among Yup'ik Eskimos living in remote Alaska Native communities: The CANHR study. *International Journal of Circumpolar Health*, 66(1), 62-70. <http://dx.doi.org/10.3402/ijch.v66i1.18228>
- Brown, T. C. & Burch, E. S., Jr. (1992). Estimating the economic value of subsistence harvest of wildlife in Alaska. In G. L. Peterson, C. S. Swanson, D. W. McCollum, & M. H. Thomas (Eds.), *Valuing wildlife resources in Alaska* (pp. 203-254). Boulder, Colorado: Westview Press.
- Burke, T. K., & Durr, C. (2015, June). *Food security in Alaska: Definitions of “urban” and “rural” make a difference*. Paper presented at the 16th International Congress on Circumpolar Health, Oulu, Finland.
- Buy Alaska Grown. (2017). *Farmer markets*. Retrieved from <http://buyalaskagrown.com/buy/farmermarkets/>
- Casey, P. H., Simpson, P. M., Gossett, J. M., Bogel, M. L., Champagne, C. M., Connell, C., . . . Weber, J. (2006). The association of child and household food insecurity with childhood overweight status. *Pediatrics*, 118(5), e1406-e1413. <https://doi.org/10.1542/peds.2006-0097>
- Charmaz, K. (2005). Grounded theory in the 21st century: Applications for advancing social justice. In N. K. Denzin, & Y. S. Lincoln (Eds.), *The sage handbook of qualitative research* (3rd ed., pp. 507-535). Thousand Oaks, California: Sage Publications.
- Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). Thousand Oaks, California: Sage Publications.
- Colloredo-Mansfeld, R., Tewari, M., Williams, J., Holland, D.C., Steen, A., & Wilson, A.-B. (2014). Communities, supermarkets, and local food: Mapping connections and obstacles in food system work in North Carolina. *Human Organization*, 73(3), 247-257. <http://dx.doi.org/10.17730/humo.73.3.d2n40426l3u08581>

- Connell, C. L., Lofton, K. L., Yadrick, K., & Rehner, T. A. (2005). Children's experiences of food insecurity can assist in understanding its effects on their well-being. *Journal of Nutrition*, 135(7), 1683-1690. Retrieved from <http://jn.nutrition.org/content/135/7/1683.long>
- Cook, J., & Jeng, K. (2009). *Child food insecurity: The economic impact on our nation: A report on research on the impact of food insecurity and hunger on child health, growth and development*. Retrieved from No Kid Hungry website: <http://www.nokidhungry.org/sites/default/files/child-economy-study.pdf>
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks, California: Sage Publications. <https://doi.org/10.4135/9781452230153>
- Cotti, C. D., Gordanier, J., & Ozturk, O. D. (2017). *When does it count? The timing of food stamp receipt and educational performance*. Retrieved from Elsevier website: <https://ssrn.com/abstract=2992390>
- Cromartie, J., & Nulph, D. (2016). *Frontier and remote area codes* [Data file]. Retrieved from USDA-ERS website: <https://www.ers.usda.gov/data-products/frontier-and-remote-area-codes/>
- DeMarban, A. (2015, March 15). 'Vertical farm' poised to rise inside old Mat Maid building. *Alaska Dispatch News*. Retrieved from <https://www.adn.com/business/article/vertical-farm-poised-rise-inside-old-mat-maid-creamery/2015/03/16/>
- DeMarban, A. (2016, January 3). Hydroponic farm in a box offers portable, year-round crop growing. *Alaska Dispatch News*. Retrieved from <https://www.adn.com/alaska-news/article/hydroponic-farm-box-offers-portable-year-round-crop-growing/2016/01/04/>
- Duhaime, G. (Ed.). (2002). *Sustainable food security in the Arctic: State of knowledge*. Edmonton, Alberta, Canada: CCI Press.
- Ettinger de Cuba, S., Weiss, I., Pasquariello, J., Schiffmiller, A., Frank, D. A., Coleman, S.,...Cook, J. (2012). *The SNAP vaccine: Boosting children's health*. Retrieved from the Hunger Free Communities Network website: <http://www.hungerfreecommunities.org/resource-library/the-snap-vaccine-boosting-childrens-health/>
- Fall, J. A. (2016, December). *Subsistence in Alaska: A year 2014 update*. Retrieved from Alaska Department of Fish and Game website: https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2014.pdf
- Fazzino, D. V., & Loring, P. A. (2009). From crisis to cumulative effects: Food security challenges in Alaska. *Annals of Anthropological Practice*, 32(1), 152-177. <http://dx.doi.org/10.1111/j.1556-4797.2009.01033.x>
- Feeding America. (2014). *Hunger in America 2014: Report for Food Bank of Alaska, Inc.* Prepared by Urban Institute and Westat for Feeding America. Chicago, Illinois: Feeding America.
- Feeding America. (2016). *Map the Meal Gap 2016: Highlights of findings for overall and child food insecurity*. Retrieved from <http://www.feedingamerica.org/hunger-in-america/our-research/map-the-meal-gap/2014/map-the-meal-gap-2014-exec-sum.pdf>
- Fienuip-Riordan, A. (1990). *Eskimo essays: Yup'ik lives and how we see them*. New Brunswick, New Jersey: Rutgers University Press.
- Food and Agricultural Organization of the United Nations. (2017). *Food security statistics*. Retrieved from <http://www.fao.org/economic/ess/ess-fs/en/>
- Fram, M. S., Frongillo, E. A., Jones, S. J., Williams, R. C., Burke, M. P., DeLoach, K. P., & Blake, C. E. (2011). Children are aware of food insecurity and take responsibility for managing food resources. *Journal of Nutrition*, 141(6), 1114-1119. <http://dx.doi.org/10.3945/jn.110.135988>
- Gundersen, C., Satoh, A., Dewey, A., Kato, M., & Engelhard, E. (2015). *Map the Meal Gap 2015: Food insecurity and child food insecurity estimates at the county level*. Chicago, Illinois: Feeding America.
- Guyot, M., Dickson, C., Paci, C., Furgal, C., & Chan, H. M. (2006). Local observations of climate change and impacts on traditional food security in two northern Aboriginal communities. *International Journal of Circumpolar Health*, 65(5), 403-415. <http://dx.doi.org/10.3402/ijch.v65i5.18135>
- Herman-Mercer, N., Schuster, P. F., & Maracle, K. B. (2011). Indigenous observations of climate change in the Lower Yukon River Basin, Alaska. *Human Organization*, 70(3), 244-252. <http://dx.doi.org/10.17730/humo.70.3.v88841235897071m>
- Inuit Circumpolar Council-Alaska. (2016). *Alaskan Inuit food security conceptual framework: How to assess the Arctic from an Inuit perspective* [Brochure]. Retrieved from <http://iccalaska.org/wp-icc/wp-content/uploads/2016/03/Food-Security-Report-Brochure.pdf>

- Jyoti, D. F., Frongillo, E. A., & Jones, S. J. (2005). Food insecurity affects school children's academic performance, weight gain, and social skills. *Journal of Nutrition*, 135(12), 2831-2839. Retrieved from <http://jn.nutrition.org/content/135/12/2831.long>
- Kellogg, J., Wang, J., Flint, C., Ribnick, D., Kuhn, P., De Mejia, E. G., . . . Lila, M. A. (2010). Alaska wild berry resources and human health under the cloud of climate change. *Journal of Agricultural Food Chemistry*, 58(7), 3884-3900. <http://dx.doi.org/10.1021/jf902693r>
- Kraemer, L. D., Berner, J. E., & Furgal, C. M. (2005). The potential impact of climate on human exposure to contaminants in the Arctic. *International Journal of Circumpolar Health*, 64(5), 498-508. <http://dx.doi.org/10.3402/ijch.v64i5.18031>
- Letwin, S. R. (1993). *The anatomy of Thatcherism*. New Brunswick, New Jersey: Transaction Publishers.
- Loring, P. A., & Gerlach, S. C. (2010). Outpost gardening in interior Alaska: Food system innovation and the Alaska Native gardens of the 1930s through the 1970s. *Ethnohistory*, 57(2), 183-199. <http://dx.doi.org/10.1215/00141801-2009-060>
- Loring, P. A., & Gerlach, S. C. (2015). Searching for progress on food security in the North American North: A research synthesis and meta-analysis of the peer-reviewed literature. *Arctic*, 68(3), 380-392. <http://dx.doi.org/10.14430/arctic4509>
- Loring, P. A., Gerlach, S. C., & Harrison, H. L. (2013). Seafood as local food: Food security and locally caught seafood on Alaska's Kenai Peninsula. *Journal of Agriculture, Food Systems, and Community Development*, 3(3), 13-41. <http://dx.doi.org/10.5304/jafscd.2013.033.006>
- McCoy, K. (2015, April 19). Hometown U: A future for Anchorage's community gardens. *Alaska Dispatch News*. Retrieved from <http://www.adn.com/article/20150419/hometown-u-future-anchorage-s-community-gardens>
- McLaughlin, K. A., Green, J. G., Alegría, M., Costello, E. J., Gruber, M. J., Sampson, N. A., & Kessler, R. C. (2012). Food insecurity and mental disorders in a national sample of U.S. adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51(12), 1293-1303. <http://dx.doi.org/10.1016/j.jaac.2012.09.009>
- Meadow, A. M. (2012). Assessing access to local food system initiatives in Fairbanks, Alaska. *Journal of Agriculture, Food Systems, and Community Development*, 2(2), 217-236. <http://dx.doi.org/10.5304/jafscd.2012.022.006>
- Meadow, A. M. (2013). Alternative food systems at ground level: The Fairbanks Community Garden. *Journal of Ecological Anthropology*, 16(1), 76-84. Retrieved from <http://scholarcommons.usf.edu/jea/vol16/iss1/6>
- Meter, K., & Goldenberg, M. P. (2014). *Building food security in Alaska*. Retrieved from Crossroads Resource Center website: <https://www.crcworks.org/>
- Murphy, C., de Cuba, S. E., Cook, J., Cooper, R., & Weill, J. D. (2008). *Reading, writing and hungry: The consequences of food insecurity on children, and on our nation's economic success*. Washington, DC: Partnership for America's Economic Success.
- Naegele, V. (2014, August 23). Farming growth in Alaska tops national average. *Mat-Su Valley Frontiersman*. Retrieved from http://www.frontiersman.com/news/farming-growth-in-alaska-tops-national-average/article_fb99fe76-2b43-11e4-9d99-0019bb2963f4.html
- Nakano, T., Fediuk, K., Kassi, N., & Kuhnlein, H. V. (2005). Food use of Dene/Métis and Yukon children. *International Journal of Circumpolar Health*, 64(2), 137-146. <http://dx.doi.org/10.3402/ijch.v64i2.17966>
- O'Malley, J. A., Peltier, C. B., & Klein, M. D. (2012). Obese and hungry in the suburbs: The hidden faces of food insecurity. *Academic Pediatrics*, 12(3), 163-165. <http://dx.doi.org/10.1016/j.acap.2012.03.042>
- Pearce, T., Ford, J., Willox, A. C., & Smit, B. (2015). Inuit traditional ecological knowledge (TEK), subsistence hunting and adaptation to climate change in the Canadian Arctic. *Arctic*, 68(2), 233-245. <http://dx.doi.org/10.14430/arctic4475>
- QSR International. (2012). NVivo (Version 10). QSR International.
- Rank, M. R., Hirschl, T. A., & Foster, K. A. (2014). *Chasing the American dream: Understanding what shapes our fortunes*. New York: Oxford University Press.
- Sadleir-Hart, L. (2014). *Sitka Community Food Assessment indicators report*. Retrieved from Sitka Local Foods Network website: <https://sitkalocalfoodsnetwork.files.wordpress.com/2014/04/food-assessment-indicator-report-web-version.pdf>

- Schuster, R. C., Wein, E. E., Dickson, C., & Chan, H. M. (2011). Importance of traditional foods for the food security of two First Nations communities in the Yukon, Canada. *International Journal of Circumpolar Health*, 70(3), 286-300. <http://dx.doi.org/10.3402/ijch.v70i3.17833>
- Seligman, H. K., Bindman, A. B., Vittinghoff, E., Kanaya, A. M., & Kushel, M. B. (2007). Food insecurity is associated with diabetes mellitus: Results from the National Health Examination and Nutrition Examination Survey (NHANES) 1999-2002. *Journal of General Internal Medicine*, 22(7), 1018-1023. <http://dx.doi.org/10.1007/s11606-007-0192-6>
- Seligman, H. K., Laraia, B. A., & Kushel, M. B. (2010). Food insecurity is associated with chronic disease among low-income NHANES participants. *Journal of Nutrition*, 140(2), 304-310. <http://dx.doi.org/10.3945/jn.109.112573>
- Snyder, E. H., & Meter, K. (2015). Food in the last frontier: Inside Alaska's food security challenges and opportunities. *Environment: Science and Policy for Sustainable Development*, 57(3), 19-33. <http://dx.doi.org/10.1080/00139157.2015.1002685>
- State of Alaska Department of Health and Social Services, Obesity Prevention and Control Program. (2013). *Alaska obesity facts: Local foods*. Retrieved from http://dhss.alaska.gov/dph/chronic/documents/obesity/pubs/factsheet_localfoods.pdf
- State of Alaska Department of Labor and Workforce Development. (2017). *Cities and Census Designated Places (CDPs), 2010 to 2016* [Microsoft Excel spreadsheet]. Retrieved from <http://live.laborstats.alaska.gov/pop/estimates/data/TotalPopulationPlace.xls>
- Stevenson, K. T., Alessa, L., Kliskey, A. D., Rader, H. B., Pantoja, A., & Clark, M. (2014). Sustainable agriculture for Alaska and the circumpolar north: Part I. Development and status of northern agriculture and food security. *Arctic*, 67(3), 271-295. <http://dx.doi.org/10.14430/arctic4402>
- Theriault, S., Otis, G., Duhaime, G., & Furgal, C. (2005). The legal protection of subsistence: A prerequisite of food security for the Inuit of Alaska. *Alaska Law Review*, 22(1), 35-87. Retrieved from <https://scholarship.law.duke.edu/alr/vol22/iss1/3/>
- Thornton, T. F. (1998). Alaska Native subsistence: A matter of cultural survival. *Cultural Survival Quarterly*, 22(3), 29-34. Retrieved from <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/alaska-native-subsistence-matter-cultural-survival>
- Thompson, T. F. (2008). Gone Native: Immigrants, Natives and the quest for the 'real Alaskan.' *Journal of Intercultural Studies*, 29(4), 399-412. <http://dx.doi.org/10.1080/07256860802372345>
- U.S. Bureau of Labor Statistics. (2017). *May 2016 state occupational employment and wage estimates*. Retrieved from <https://www.bls.gov/oes/current/oesrscst.htm>
- U.S. Census Bureau. (2017). *State and county quick facts: Alaska* [Data table]. Retrieved from <https://www.census.gov/quickfacts/table/PST045216/00>
- U.S. Census Bureau. (2017). *Percent of related children under 18 years below poverty level in the past 12 months: Alaska*. Retrieved from <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>
- U.S. Fish and Wildlife Service. (2014). *2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation: Alaska*. Retrieved from <https://www.census.gov/prod/2013pubs/fhw11-ak.pdf>
- Vartanian, T. P., Houser, L., & Harkness, J. (2011). Food stamps and dependency: Disentangling the short-term and long-term economic effects of food stamp receipt and low income for young mothers. *Journal of Sociology and Social Welfare*, 38(4), 101-122. Retrieved from <http://scholarworks.wmich.edu/jssw/vol38/iss4/6/>
- Wilde, P. E., & Peterman, J. N. (2006). Individual weight change is associated with household food security status. *Journal of Nutrition*, 136(5), 1395-1400. Retrieved from <http://jn.nutrition.org/content/136/5/1395.abstract>
- Wohlforth, C. (Host). (2015, April 17). Hometown Alaska: Eating local with fish [Radio broadcast episode]. *Alaska Public Media*. Retrieved from <http://www.alaskapublic.org/2015/04/17/eating-local-with-fish/>
- Zaslow, M., Bronte-Tinkew, J., Capps, R., Horowitz, A., Moore, K. A., & Weinstein, D. (2009). Food security during infancy: Implications for attachment and mental proficiency in toddlerhood. *Maternal and Child Health Journal*, 13(1), 66-80. <http://dx.doi.org/10.1007/s10995-008-0329-1>